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Biotechnology - GE Plants and Animals

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Approved By:

Orestes Vasquez, Agricultural Attaché

Prepared By:

Sakchai Preechajarn, Agricultural Specialist

Report Highlights:

TH0108. The report reflects updates on policy, capacity building developments and industry's successful efforts to fend-off attempts to include biotechnology as a "potentially hazardous activity" under its Constitution.

Section I. Executive Summary:

On December 2007, the Thai Cabinet revoked the ban on biotech field trials, however little progress has occurred in allowing the commercial use of biotech crops in Thailand. This is a result of the restrictive controls and surveillance required for field trials, which include confining trials to government properties and the need to conduct public hearings prior to initiating any new field trials.

The 2007 Cabinet agreement outlines the need to develop sound guidelines for field trials by drafting and implementing a Biosafety Law to end the impasse on field trials and commercialization of agricultural biotechnology. However, the implementation of the Biosafety regulation is currently pending as it's under review.

In early 2010, agricultural biotechnology faced an additional hurdle when it was considered to be labeled as a "potentially hazardous activities to a community's well-being" which would require any attempts to use technology in any way or form to undergo health and environmental risk assessments. In a deft and coordinated move, agricultural biotechnology stakeholders were able to successfully exclude biotechnology from this requirements through an effective risk-communication strategy at public hearings. This success is partly an outcome of FAS/Bangkok's initiative to conduct risk-communication workshop and provide relevant scientific information to support the soundness of the technology.

Section II. Plant Biotechnology Trade and Production:

Research progress has been made over the past 20 years, such as the completion of field trials several imported transgenic plants and several local varieties. The first field trails conducted were with Flavr Savr tomato, a delayed ripening tomato in 1994. Subsequently, filed-testing was conducted for Bt cotton, Bt corn, Round-up ready cotton, Round-up ready corn, Antisent RNA tomato, and ring-spot virus resistant papaya. The safety and potential that Monsanto's Bt cotton demonstrated during the trial period led to expectations of becoming the first transgenic crop to be approved for commercial planting in Thailand. However in 2003, due to environmental and human health concerns, the Thai government issued a blanket ban on all field trials to avoid political fallout from non-governmental organizations (NGO'S). This opposition was initiated by BioThai and Organization of the Poor, which has caused the implementation of effective policies regulating biotechnology production to linger to the point that production is currently restricted.

On the trade side, due manly to a need for soybeans to meet its processed oil and feed demand; Thailand, based on the Cabinet's decision on April 3, 2001 and the Plant Quarantine Act B.E. 2507, allows the importation of transgenic plants as: (1) processed foods; and (2) soybeans and corn for feed, and industrial use.

Thai Food and Drug Administration (FDA) also regulates that processed foods containing biotech products must comply with labeling requirements which allows for a five percent tolerance (see also

[TH6077](#)) for biotech materials/products. If it exceeds this threshold it must be labeled accordingly.

Section III. Plant Biotechnology Policy:

Current Biotechnology Policy

Although the Thai Cabinet revoked the biotech field trial ban in Thailand on December 25, 2007 ([TH6077](#)), future field trials must be conducted under restrictive controls and surveillance, these include confining trials to government properties and conducting public hearings prior to initiating new field trials.

At the time, government and private sector stakeholders voiced concerns with this measure, since field trial approval is done on a case-by-case basis by the Cabinet which to date has been detrimental due to the politicized tone it has taken. Besides, the procedures for public hearings are unclear and provide a platform for opponents of the technology to shut down meaningful debate using unsupported claims.

To deal with these concerns, the 2007 Cabinet Agreement was amended to include the need to develop sound guidelines for field trials through the implementation of an effective Biosafety Law. However, the development of the Biosafety law is currently pending, but a law has been drafted and is currently being reviewed at the second-stage draft stage by the Office of the Council of State (OCS). After this review has been finalized, with input from the Office of Natural Resources and Environmental Policy and Planning (ONEP), Department of Agriculture (DOA) and National Center for Genetic Engineering and Biotechnology (BIOTEC), the final draft should be submitted to the Cabinet after the OCS' third-round review and is expected to be endorsed in some way by the end 2010. See GAIN reports [TH8144](#) "Status of the Thai Biosafety Law", and [TH9111](#) "Agricultural Biotechnology Annual".

The Biosafety Law contains 9 Chapters, these include:

- The appointment and responsibilities of the National Biosafety Commission;
- Appointment and responsibilities of the national coordination agency and appointing Biodiversity Office as a Secretariat office for the National Biosafety Commission;
- Operational provisions on 1) import, export and transmit of GMOs, 2) contained use of GMOs, 3) field experiment in confined area, 4) intentional release of GMOs to the environment, 5) placing GMOs on the market; 6) suspending, revoke, and cancellation of license, 7) handling, transport, relocates, storage, packaging, and identification of GMOs, and 8) emergency and unintentional release of GMOs to the environment;
- Public participation, disclosure and cancellation;
- Establishment of National Biosafety Fund;
- Officers duties, responsibilities, and authority;
- Appeal procedures;
- Liability and redress on GMO impact on biodiversity, human health, and social and economic living;
- Enforcement and punishment;

The Cabinet's decision in December 2007 also implied that while the Biosafety Law has not been in

place, the Ministry of Agriculture must develop field trial procedures. These procedures would be used for the Cabinet to review and approve a request to conduct the field trial for specific biotech crop as a case-by-case basis. The development of these field trial procedures is pending since 2008. Final draft field trial procedure guidelines are under review by Department of Agriculture (DOA) and National Center for Genetic Engineering and Biotechnology (BIOTEC). Dr. Banpot Napometch, the advisor to the DOA, reviewed the draft of field trial guidelines on papaya and tomatoes and forwarded them to Department of Agriculture in March. However, upon a follow-up with DOA, the DOA's Director General has not submitted the final draft to the Ag Minister prior to submission to the Cabinet for final approval.

In early 2010, agricultural biotechnology faced an additional hurdle when it was considered to be included under a law that lists "potentially hazardous activities to a community's well-being" which under the constitution would require any attempts to use biotechnology in any form to undergo a health and environmental risk assessment. The following are details on how this initiative was put forward and how stakeholders worked in unison to derail this initiative:

On September 29, 2009, the Administrative Court of Thailand suspended 65 industrial projects at Map Ta Phut Industrial Zone citing environmental concerns, specifically the failure to comply with constitutional requirements for environmental and health impact assessments.

On November 13, 2009, the Thai Government, fearing a backlash from the investment community, created the Committee for the Resolution of Problems Non-Compliant with Section 67 of the Constitution of the Kingdom of Thailand to come to an expedient resolution to this impasse. The Committee is made up by a cross-section of 18 well-respected members of civil society and chaired by Former Prime Minister Anand Panyarachun. The Committee reviewed a proposed list of 19 projects as "projects or activities that may severely affect a community's well-being" by reviewing the existing evidence on the potential harm these projects could impose ([TH0043](#)). The project list also includes commercial farming of genetically modified organisms (GMOs).

After reviewing the projects, the Committee submitted these to a public hearing process before making a final decision of their inclusion in a legal framework requiring said products to undergo mandatory environmental and health impact assessments. For this specific purpose, the Committee created the Sub-Committee on Public Hearings to Review the List of "Projects or Activities that May Severely Affect a Community's Well-Being"

This measure created angst amongst the biotech community, and catalyzed stakeholders to come together and provide the necessary arguments to exclude any attempts of including biotechnology in the list. As a result, the Federation of Thai Industries (FTI) was responsible of organizing a united front to voice a common position at the public hearings with the goal of upending attempts to include GMOs in the restrictive list.

On March 2, 2010 FTI and stakeholders agreed on the following talking points:

- Biosafety Law will be submitted to Parliament for approval later this year. This law contains the necessary provisions for the safe implementation of GMOs, therefore including it in the list would duplicate work.
- Including commercial farming of GMOs as an activity that may severely affect the community is

- inaccurate as no scientific basis exists for this determination.
- There's no evidence that biodiversity is affected by GMO crops, on the contrary there is evidence that lower pesticide use has been beneficial to biodiversity.
 - Currently, papaya farmers need to relocate their growing area periodically to manage outbreaks of ring spot virus. This practice is unsustainable and burdens the environment as vectors become resistant to pesticides due to their heavy use.

The Sub-Committee set up six public hearings. On June 28, 2010 the Sub-committee decided to remove biotechnology activities from the list.

Responsible Government Agencies and Institutes

There are many government agencies and institutes/universities involved in biotechnology research and development and regulating the use of biotechnology at different levels. The role and responsibilities of these agencies or institutes are presented in the table below.

Institute	Role	Responsibilities
National Center for Genetic Engineering and Biotechnology (BIOTEC), Ministry of Science and Technology (MOST)	- Research and Development - Supporting institute	- Research and development on genetic engineering - Technical advisory - Funding agency - DNA technology laboratory
Department of Agriculture (DOA), Ministry of Agriculture and Cooperatives (MOAC)	- Competent National Authority - Research and Development Institute emphasizing on plants	- Regulating imported GMO seed for planting - Conducting research and development on plant genetic engineering and risk assessment
Food and Drug Administration (FDA), Ministry of Public Health (MOPH)	Regulate trade on GM food products	Regulating and monitoring the use of GM food including labeling
Department of Trade Negotiations and Department of Foreign Trade, Ministry of Commerce (MOC)	Regulate and coordinate international negotiation in trade on GM products	Regulating imports of GM products used as raw materials and coordinating with competent agencies for international negotiations
Ministry of Natural Resources and Environment (MONRE)	- National Focal Point - Coordinators for risk assessment on environmental aspect	- Being the National Focal Point for Convention on Biological Diversity (CBD) and Cartagena Protocol on Biosafety (CPB) - Fully responsible for drafting the National Biosafety Law
National Bureau of National Agricultural Commodity and Food Standards (ACFS), Ministry of Agriculture and Cooperatives (MOAC)	A National Focal Point for Agricultural and Food Standards (SPS issues)	Representing the RTG to negotiate all SPS issues in international organizations (such as CODEX, OIE, etc.)

Thailand became a party in the Cartagena Protocol on Biosafety on February 8, 2006. Thailand follows the principles and rules of the Cartagena Protocol on Biosafety in drafting its National

Biosafety Policy. The draft was approved by the Compliance Committee under the Cartagena Protocol on Biosafety on November 7, 2007. The policy covers eight concepts:

- Public Awareness, education and participation: Requiring the involvement of affected parties in policy-level decision-making on the sustainability, advantages and risks of the technology in question.
- Sustainability: Sustainable bioresource management must include ecological sustainability by ensuring species and genetic pool preservation.
- Risk Assessment and Management: Risk will be assessed and determined on a case-by-case basis based on scientific data.
- Risk Characterization: Characterizing risk for management and control of biotech materials must depend on the outcome of the risk assessment.
- Risk Communication: Risk communication will be based on scientific concepts simplified for public understanding, ensure public trust, as well as curb concerns due to conflicting information.
- Precautionary Principle: Avoid unnecessary damage from the lack of reliable scientific data on possible effects of biotech materials on the conservation and utilization of biodiversity, environment, and health care.
- Freedom of Choice: The state must encourage transparency, accuracy and up-to-date public information so stakeholders can make informed choices.
- Capacity Building: Continuous capacity-building on developments in of modern biotechnology, increase the level of knowledge at a national level, and, proper utilization and management of the technology by the different stakeholders.

Section IV. Plant Biotechnology Marketing Issues:

Thai producers, retailers, and consumers remain misinformed about the safety and use of transgenic plants or foods. Contrary to public perceptions, Thailand consumes large amounts of biotech crops either directly such as soybean meal and oil or indirectly through the garments, meat derived from biotech feed, and processed foods. Although mandatory labeling is required for food products containing more than the 5 percent of GMO's, much of it is absent as Thailand markets many products unpackaged or in bulk.

There has been no survey of public awareness and perception on modern biotechnology in recent years. The latest survey conducted by THAI TOPIC in 2003 had consumers rank a series of food characteristics by order of priority ([TH7090](#)). Asian Food Information Center (AFIC) conducted a survey of Perception in 2004 ([TH9111](#)). In addition, the Biotechnology Alliance Association (BAA) presented their Study of Agricultural Biotechnology Benefits in Thailand in early 2007 (TH7015). The report reviewed the socioeconomic impact of the technology and estimates Thailand's loss if Thailand does not adopt this technology.

Section V. Capacity Building and Outreach

In 2009-2010, the U.S. Government (USG) conducted several capacity building and outreach activities. These activities were funded by USDA and State Department. These include:

- USDA funded government participants to the Asian Pacific Economic Cooperation (APEC) dialogue on biotechnology w in Japan on December 2009 and May 2010.
- Dr. Clive James, Chairman, ISAAA, presented his update on the Global Status of Commercial Biotech/GM Crops to Thai.
- Dr. Dennis Gonsalves, Center Director, USDA/ARS, visited Thailand in June 2009 and gave presentation on “Environmental, Food Safety Assessment and Experiences on Deregulation of Hawaiian Transgenic Papaya” to Thai biotech researchers and academics.
- Jack Bobo, Senior Advisor for Biotechnology, Office of Multilateral Trade and Agriculture Affairs, U.S. Department of State, and a team collaborated an outreach effort to Thailand in advance of the Friends of the Chair meeting on Article 27 (liability and redress) of the Biosafety Protocol, which will be held in Kuala Lumpur in February 2010.
- The Department of State and FAS/Bangkok organized an agricultural biotechnology risk communication workshop in Bangkok from October 5-6, 2009. The workshop was well received, having more than 140 participants including researchers, NGO officials, quality control specialists, marketing agents, senior and mid-level managers and academics. The evaluation from the workshop indicated that 88-92% of participants rated the presentation excellent in terms of overall quality and relevance to the participants’ jobs.

The modern/agricultural biotechnology outreach in Thailand is challenging when trying to reach policymakers as political unwillingness is prevalent in tackling the issue. However, in order to move biotechnology forward it is necessary to rely on industry and scientific stakeholders, which are supportive of the technology. This approach was successfully tested when stakeholders formed a unified front to exclude biotechnology from the list of a “potentially hazardous activities to a community’s well-being”. However, they need more support to keep developing an evolving risk-communication strategy.

Another activity that needs additional outreach efforts is the necessity of a closer engagement with government officials and politicians and emphasizes how countries in the region, such as Vietnam and Philippines, are at the forefront of agricultural development with the introduction of these technologies. Point out that if Thailand does not keep-up with advances it will find itself in an unenviable position.

Section VI. Animal Biotechnology:

Thailand has not initiated any development on the genetic engineering of animals.